# Researchers offer roadmap for rolling out COVID-19 risk mitigation initiatives at educational institutions

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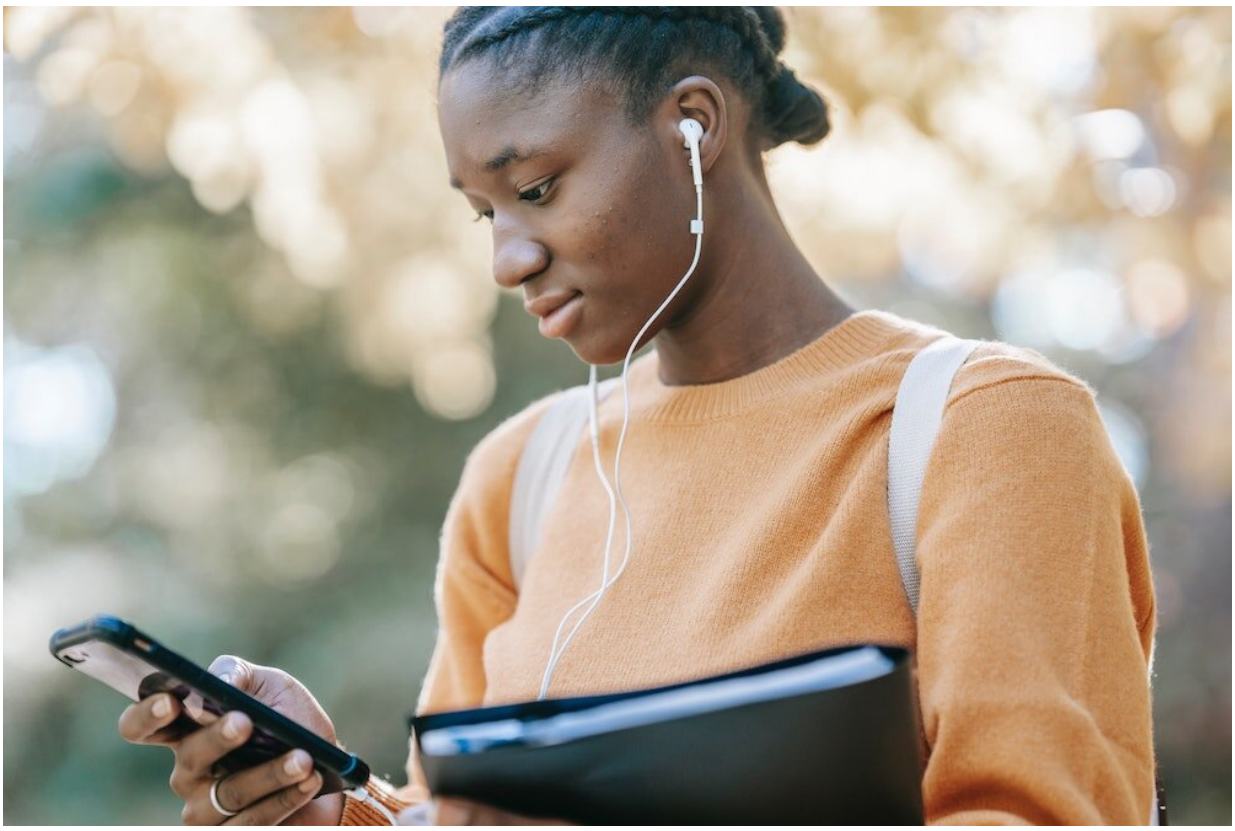

College-aged young woman looking at her cell phone. Credit: Charlotte May

During the pandemic, colleges and universities across the nation have wrestled with a common dilemma. They wish to open back up for in-

person learning but doing so risks increased spread of COVID-19, potentially forcing them to shut back down or return to remote learning. Contact tracing could be the answer, but only if students, faculty and staff are promptly informed of potential exposures so that they can seek testing and quarantine while still within the window of infectiousness. Shortages in contact tracing staff can slow the process. The inability of those testing positive to remember all potential contacts also limits effectiveness.

A new article by researchers at the Medical University of South Carolina (MUSC) and Clemson University in the *Journal of Medical Internet Research (JMIR) Research Protocols* provides a roadmap for implementing an exposure notification mobile app among students, faculty and staff at Clemson, a large public university in South Carolina. The roadmap also provides a theory-based framework for evaluating the success of the rollout and the impact that app-based notifications had on decisions by users to be tested and to quarantine. Although the implementation plan in this case is focused on rolling out an app at a university, it could be used for any COVID-19 mitigation strategy in a wide variety of settings.

"It took us a lot of time to put this together because we were starting from ground zero, but the roadmap outlined in our article could help people hit the ground running for their institution," said Cathy Melvin, Ph.D., lead author of the article. Melvin is a professor in the Department of Public Health Sciences at MUSC and associate director of the Dissemination and Implementation Science Collaborative (DISC) at the South Carolina Clinical and Translational Research (SCTR) Institute

The SC Safer Together app was developed for use in South Carolina with the Google/Apple Exposure Notification System open-source software and its application programming interfaces for iPhone and Android operating systems. The app aimed to provide quick, largely

automated notification of a potential COVID-19 exposure to users, who could then pursue testing and quarantine if necessary.

The app and supporting software were readied for rollout at Clemson University by technical teams at the MUSC Biomedical Informatics Center (BMIC) and Clemson Computing and Information Technology (CCIT). The teams were led by Leslie Lenert, M.D., BMIC director and associate principal investigator for the SCTR Institute.

App users who test positive for COVID-19 receive a secure text message from the testing facility. The text includes a deep link, a mobile link that directs users to a specific screen within a mobile app. Clicking on that link activates automated exposure notifications to other app users. Using the location feature on smart phones, the app notifies other users who have been within six feet of the COVID-positive person for at least 15 minutes. The app also provides information on users' cumulative lower-level exposures by assessing the strength of the Bluetooth signal between their phones and the phones of users testing positive within the past 14 days. Finally, the app provides a "Get Care" link to point users desiring testing to appropriate facilities or websites.

"We developed this app to be an effective tool to study exposure notification technology," said Lenert. "By basing the infrastructure for notification, consent for sharing and reporting at Clemson, within our own custom-built apps, we were able to conduct a more detailed evaluation of the technology than if we used the national platform."

The app is also designed to ensure privacy and choice. The identities of those downloading the app or uploading test results are never revealed to other app users or to the researchers. Users can choose whether to upload test results and activate exposure notifications. Although the location feature is used by the app to identify potential contacts, individual users cannot be tracked using the device.

Ronald W. Gimbel, Ph.D., professor and former chair of the Department of Public Health Sciences at Clemson University, director of Clemson Rural Health and DISC associate director, headed up the dissemination and implementation research team, which included Melvin, MUSC's Katherine Sterba, Ph.D., and Clemson's Kathleen Cartmell, Ph.D. He also oversaw the operational aspects of the rollout at Clemson. Dissemination and implementation researchers design studies to learn the best way to launch and evaluate evidence-based strategies in real-world settings.

A phased approach was adopted for the app's rollout. It was made available first to students in just two dormitories, then to all employees and then to the entire student body. This phased rollout ensured that health and testing facilities were not overwhelmed. With the help of University Relations at Clemson University, targeted messaging was created for each group of users. These messages highlighted the usefulness of the app, allayed any privacy concerns, provided instructions for downloading and using the app and later provided FAQs. The offices of Student Affairs and Housing, as well as Human Resources, were engaged to ensure proper dissemination of communications about the app. Simple metrics were used to gauge the success of the rollout. These included the number of app downloads, consents to share COVID-19 status and notification activations. Researchers also kept track of those who followed through with getting tested after being notified of an exposure.

The rollout had many moving parts, according to Gimbel, and would not have been possible without the close collaboration and teamwork of all of those involved.

"We had communications professionals working with academic faculty and Information Technology leaders, all collaborating with Housing and other Student Affairs administrators as well as Human Resources leads,"

said Gimbel. This interprofessional team with diverse expertise and a passion for the project became the SC Safer Together support team, he said.

The research team expects to report findings on the rollout later this year.

**More information:** Cathy Lee Melvin et al, Dissemination and Implementation of a Google Apple Exposure Notification System for COVID-19 Risk Mitigation at a National Public University: Protocol for a Pilot Evaluation Study in a Real-World Setting, *JMIR Research Protocols* (2021). DOI: 10.2196/32567

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